

REMARKS

Claims 19-47 stand rejected as failing to comply with 35 U.S.C. 112, first paragraph.

The Examiner has referred to Applicant's purported improper use of the term "mode" in previously recited claims 19, 27, and 32. As claims 1-40 and 43-46 are now cancelled, it is submitted that this rejection is now moot with respect to these claims. Regarding claims 41, 42, and 47, the Examiner has not specified why these claims fail to comply with 35 U.S.C. 112, first paragraph. Applicant has nevertheless amended claims 41, 42, and 47 to further define them over the cited art, and submits that they are in compliance with 35 U.S.C. 112, first paragraph and that the rejection should be withdrawn.

Claims 19-26 and 41-47 stand rejected under 35 U.S.C. 103(a) as being unpatentable over International Patent Publication WO 97/06940 to Chapman (U.S. Patent No. 6,153,132 hereinafter, 'Chapman '132') in view of U.S. Patent No. 7,335,010 to Ulrich (hereinafter, 'Ulrich'). Claims 27-40 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman '132 and Ulrich in view of U.S. Patent Pub. No. 2002/0022101 to Lenthe et al (hereinafter, 'Lenthe').

Applicant disagrees with these rejections, but has nevertheless cancelled claims 19-40 and 43-46, amended claims 41, 42, and 47, and added new claims 48-63 which further define Applicant's invention over the cited art. Applicant reserves the right to pursue any cancelled subject matter in one or more continuation applications. Applicant traverses the rejections for the reasons set forth below.

In particular, new claim 48 requires a method of producing oriented plastic tube which requires, inter alia:

performing a continuous sequence, including
(i) continuously extruding a tube, the tube having an outer diameter;
(ii) adjusting the outer diameter of the tube of (i) to a first adjusted outer diameter;
(iii) temperature conditioning the tube of first adjusted outer diameter;
(iv) **diametrically expanding the tube of (iii)** into an oriented tube having a second outer diameter larger than the first adjusted outer diameter; and
(v) cooling the oriented tube of (iv),
wherein the first adjusted outer diameter is actively varied to control circumferential draw of the oriented tube during performance of the continuous sequence without stopping continuous extrusion of the tube.

The cited art does not teach or suggest these limitations.

Chapman discloses a sizing sleeve 13 (FIG. 1) which is a fixed diameter device used to correct the diameter of the extruded tube. Such a fixed sizing sleeve 13 is inherently incapable of actively varying the extruded outer tube diameter for control of circumferential draw as required by claim 48. Moreover, even if a different sized sizing sleeve were inserted into the product line of Chapman to change the extruded outer tube diameter, such substitution would require shutting down the product line. Thus, Chapman does not disclose or suggest actively varying the first adjusted outer diameter during performance of a continuous sequence in which the tube is extruded, temperature conditioned, diametrically expanded, and cooled as required by claim 48, let alone varying the first adjusted outer diameter to control circumferential draw of the oriented tube or without stopping continuous extrusion of the tube as required by claim 48.

The Examiner has offered Ulrich to purportedly disclose a variable diameter calibrator which could be substituted for the calibrator of Chapman. However, Ulrich does not disclose or

suggest using the variable diameter calibrator to control circumferential draw of the oriented tube as required by claim 48. Neither Ulrich nor Chapman teach or suggest this limitation.

Moreover, claim 48 requires that adjustment of the outer diameter of the tube to a first adjusted outer diameter occur upstream of diametric expansion, a limitation which is clear from a plain reading of claim 48:

"adjusting the outer diameter of the tube of (i) to a first adjusted outer diameter; (iii) temperature conditioning the tube of first adjusted outer diameter; (iv) **diametrically expanding the tube of (iii)** into an oriented tube having a second outer diameter larger than the first adjusted outer diameter"...

By contrast, the variable diameter calibrator (calibrating tools 40a, 40b) of Ulrich is incorporated into a product line downstream of diametric expansion (vacuum suction bell 2) of the tube at calibration station 3 (See FIGS. 1, 4A, 4B and Col. 4, lines 17-21 and line 62 to Col. 9, line 5). Thus, Ulrich teaches away from the methodology of claim 48 and from substitution for the calibrator 13 of Chapman, which is disposed upstream of diametrical expansion. The substitution of the variable diameter calibrator of Ulrich for the calibrator of Chapman is not taught by either Ulrich or Chapman. Neither Chapman nor Ulrich teach or suggest actively varying a first adjusted outer diameter during continuous extrusion of a tube upstream of diametric expansion of the tube in order to control circumferential draw of the resulting oriented tube as required by claim 48.

Lenthe discloses varying an upstream speed control means 20 to vary tube thickness at a particular part 70 of the tube (see paragraphs [0129] to [0131]). However, the thickened part 70 is passed through a calibration sleeve 10 so that the preform tube 6 acquires a uniform external diameter with the thickened part 70 projecting inward (See FIG. 1A and Paragraph [115]).

Lenthe does not disclose or suggest actively varying a first adjusted outer diameter to control circumferential draw of an oriented tube as required by claim 48.

For these reasons, Applicant submits that claim 48 is patentable over the cited art.

Claims 49-63, which depend from claim 48, are patentable for the same reasons that claim 48 is patentable, and for reciting additional limitations that are not shown or suggested in the cited art.

For example, claim 50 requires actively increasing both the first adjusted outer diameter and the second outer diameter during performance of the continuous sequence without changing circumferential draw of the oriented tube. The cited art does not disclose or suggest these limitations, let alone in combination with the elements discussed above.

By way of another example, claim 60 requires that the first adjusted outer diameter of the tube be actively **increased during continuous extrusion of the tube** without increasing the second outer diameter to decrease circumferential draw of the oriented tube. This limitation is not shown or suggested in the cited art.

Independent claim 41 is patentable for the same reasons that independent claim 48 is patentable, and for reciting additional limitations not shown or suggested by the cited art. Claims 42 and 47, both of which depend from claim 41, are patentable for the same reasons that claim 41 is patentable, and for reciting additional limitations not shown or suggested by the cited art.

Should any issues remain outstanding, the Examiner is invited to call the undersigned attorney of record so that the case may proceed expeditiously to allowance.

Respectfully submitted,

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